

Foreign Technology Division

HAVE DRILL/HAVE FERRY - EXPLOITATION OF THE SOVIET MiG-17F



**Rob Young
Historian**

National Air and Space Intelligence Center

**This Briefing
is Classified:**

UNCLASSIFIED//APPROVED FOR PUBLIC RELEASE



DETAILED THREAT **KNOWLEDGE**

- **The heritage of Foreign Materiel Exploitation**
- **1945 - *Exploiting The ME-262***
- ***The Problem with the Russians***





A Dream Come True

- **MiG-15bis Flown by No Kum Sok defected on 21 September 1953**
- **Most important technical intelligence of the 1950s: Validated our methods**





Testing the MiG-15

- MiG-15 flown at Wright Patterson, Eglin, PAX River
- Flew against B-47, B-36, F-84 and F-86



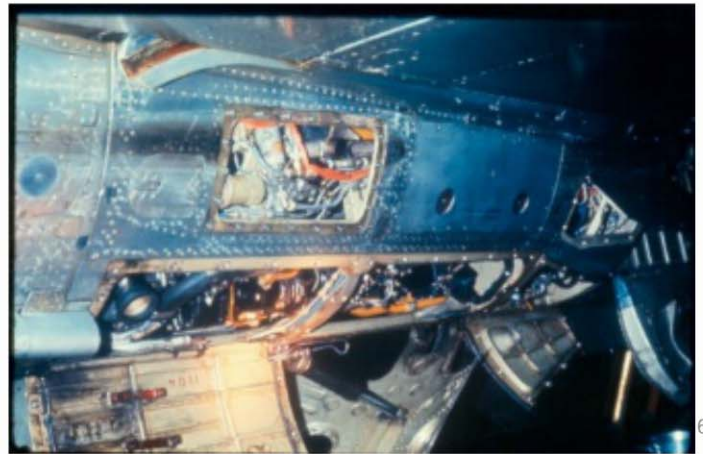


1968: The Mystery MiG-21





Project HAVE DOUGHNUT





MiG-21 Flight Test





1969: The MiG-17F's Turn





What We Had

- **HAVE DRILL**
- **Instrumented**
- **Periscope**
- **SCAN FIX radar**
- **172 sorties**



- **HAVE FERRY**
- **Back-up A/C**
- **No Periscope**
- **No radar**
- **52 Sorties**





Test Equipment





U.S. Test Equipment

- **AFFTC personnel replaced the clock, airspeed indicator, altimeter, and accelerometer, plus installed a machmeter**
- **Installed voice tape recorder in cockpit and photo recorder for instruments in the nose compartment**
- **14-channel oscillograph mounted in gun platform where ammo boxes were. It weighed 75 pounds**
- **Recorded fuel flow/temp, OAT, engine RPM, airspeed/altitude, control surface positions, attitude, roll-pitch-yaw rates, acceleration and the EVENT button**



14-channel Oscillograph

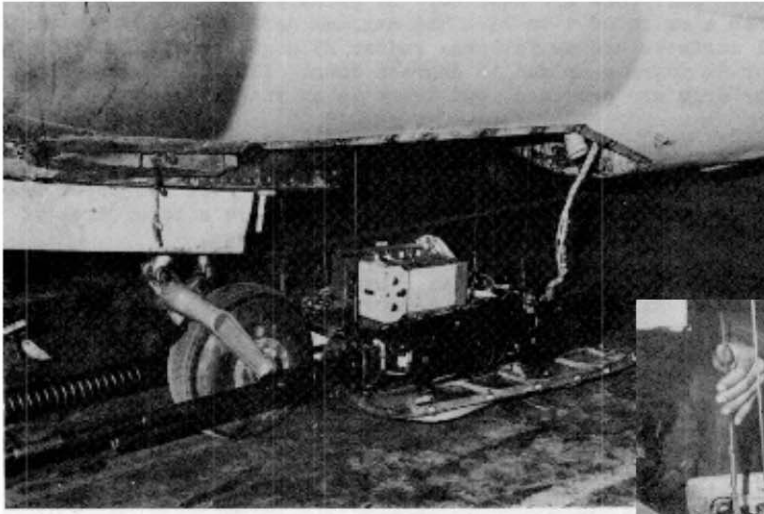
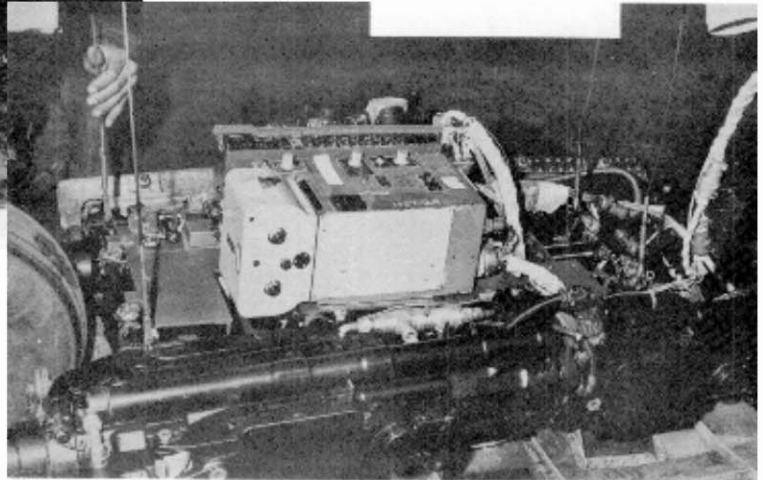


Figure II-3 Fresco C Gun Package-Lowered

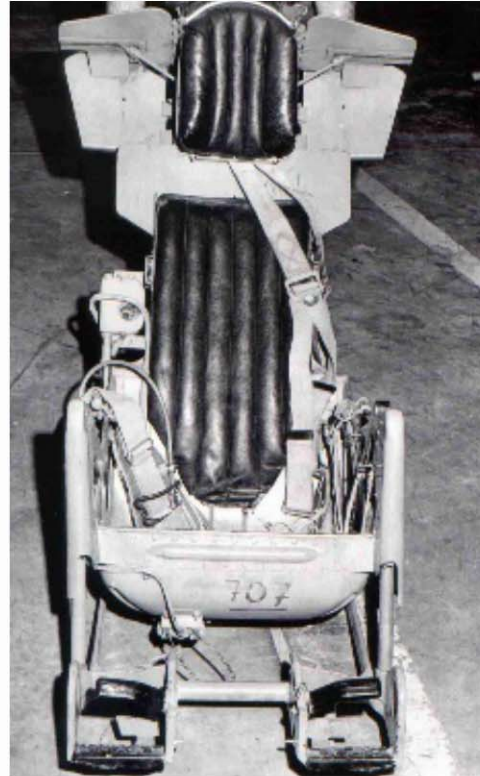
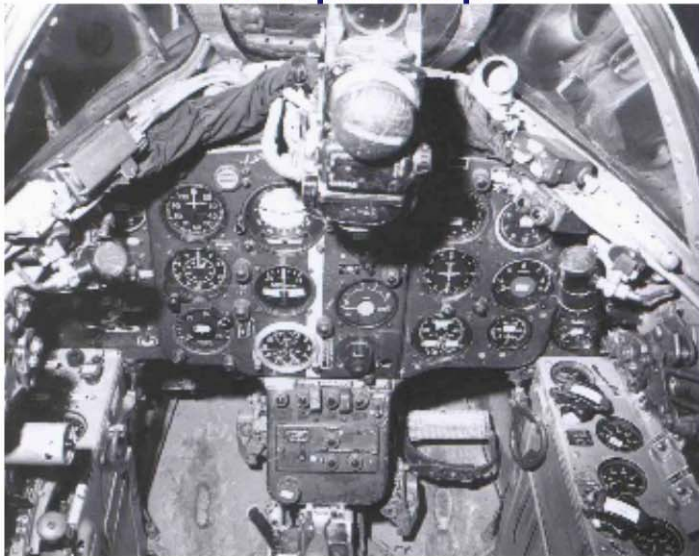


OSCILLOGRAPH FOR RECORDING FLIGHT TEST DATA



The MiG-17F cockpit

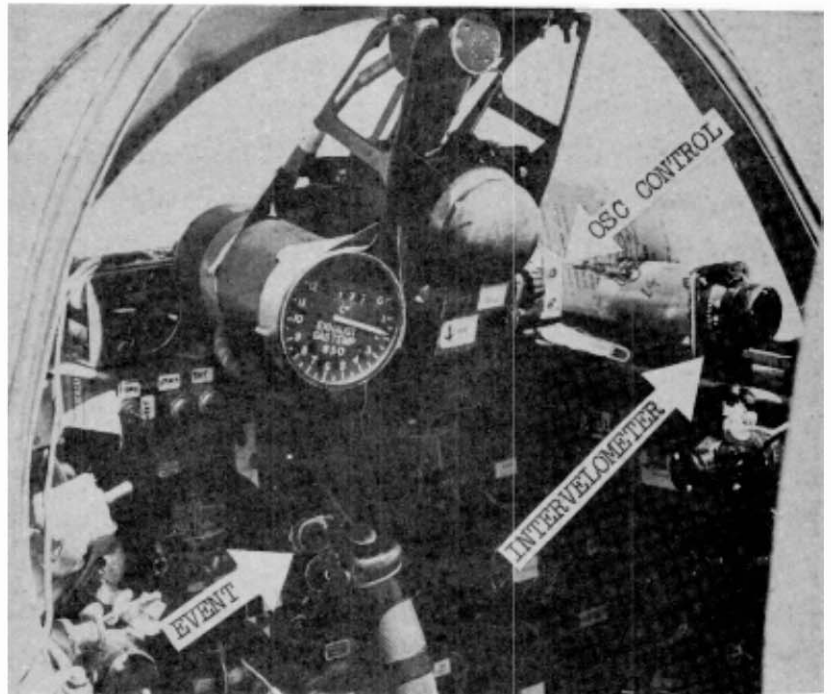
- Antiquated design
- Cramped for a man over 6 feet and the seat was not adjustable
- Excellent periscope





MiG-17 Cockpit Modifications

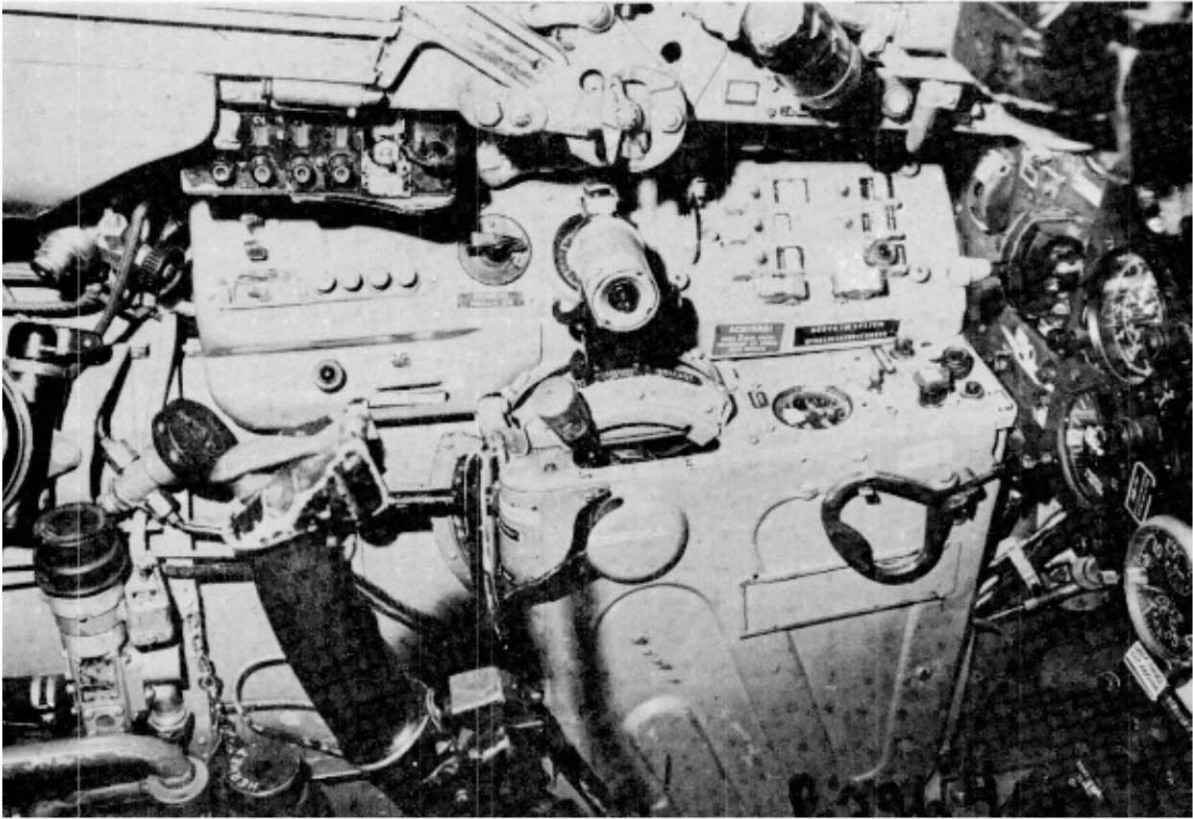
- **G meter**
- **Intervalometer**
- **Airspeed**
- **Altimeter**
- **Machmeter**
- **EGT/Tach**
- **Tape recorder**
- **UHF radio**
- **OSC/Event**



COCKPIT INSTRUMENTATION CONTROLS



Cockpit

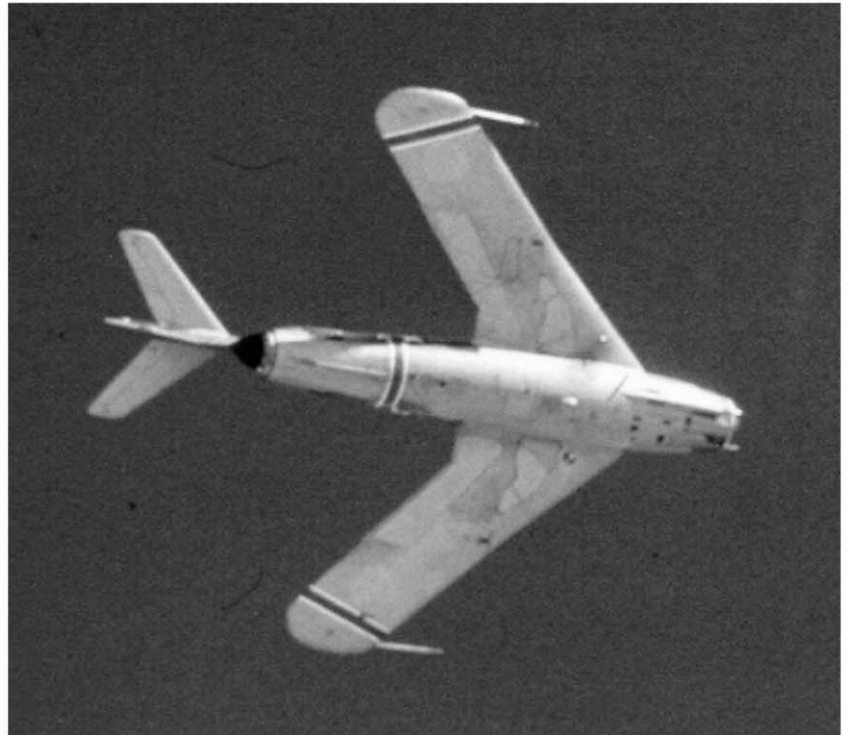




Testing The MiG-17

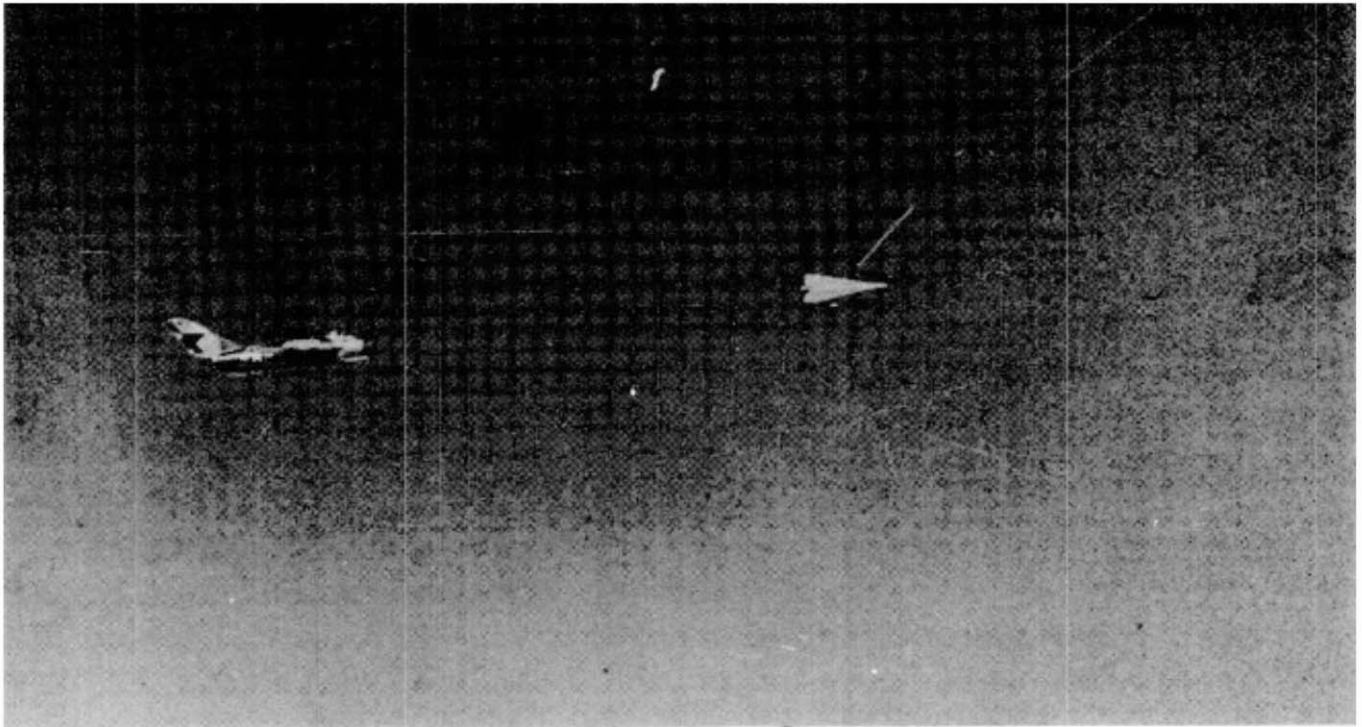
- 300-350 KIAS - MiG's best speed advantage, we couldn't outturn it
- 450 KIAS+ Speed is Life
- No smoke trail
- SCAN FIX lit the AAA warning light
- Combat radius –
115nm clean
215nm w/tanks

Aircraft was extremely reliable!! 4-5 sorties a day



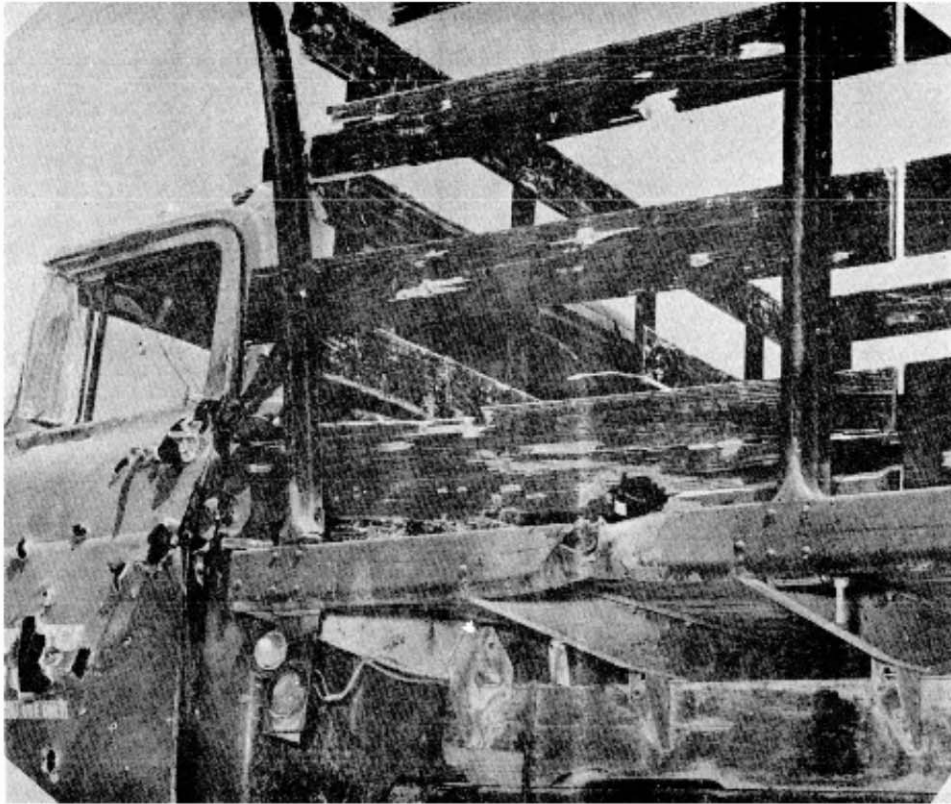


37mm/23mm Gun Tests





Don't Get Hit By Them





Technical Test Lessons Learned

- Exploited SRD-1 SCAN FIX, SRO-2 IFF, VHF radio, SIRENA RWR – Learned a Lot!
- VK-1F engine
- Infrared/Acoustic/Radar Measurements
- Vulnerability Study
- Hydraulics – Who needs them?
- She's hard to steer – differential braking
- 375 gallons internal fuel - 20-25 minutes
- Hard to see!! Little and clean
- Above 375 KIAS – Dutch Roll



HAVE FERRY





Good Stuff to Know

..Above Mach .85 control very heavy (2 hands)...8.0g limit

-In 224 flights, only 23 major discrepancies occurred and only two missions were lost

**-They spun it once (fully developed) during flight test. Spun to the left, full right rudder did nothing for four turns..popped stick full forward (to white line)
..recovered after 23 seconds/3,000 ft**

-Controls did not have pitch, roll, or yaw stability augmentation and only the ailerons were hydraulically boosted. Rudder/elevator manual

-HAVE DRILL was Lim-5 serial number 1C-07-18, built in Poland in 1956-57. The LIS-5 engine was serial number 559128

Aircraft	Arrival	First Flight	Total sorties
HAVE DRILL	27 Jan 69	17 Feb 69	172/131.3 hrs/55 days
HAVE FERRY	12 Mar 69	9 Apr 69	52/37.7 hrs/20 days